

Patent
CIT.Q136**Remarks*****Status of the Claims***

Claims 1 – 26 were original in the application. Claims 2 – 4, and 15 – 17 have been cancelled. Claims 1, 5, 8, 9, and 14 have been amended to be set forth in a clearly allowable form.

Rejection Pursuant to 35 USC 102(e)

Claims 1 – 4, 8, 9, 13 – 17, 20 – 22 and 26 were rejected as anticipated by Kurosawa. In response to the argument by applicant that Kurosawa failed to teach a waveguide defined by a line defect defined the array of holes, the Examiner responded by stating that Kurosawa defined a waveguide with an array of holes with a waveguide channel being defined between the holes which was very broadly interpreted as a "geometric perturbation" of the array.

Claim 1 as amended calls for a waveguide defined by a line defect which is created by a displacement of the first and second set of holes with respect to each other by an amount unequal to the periodic spacing of holes in the array to create at least one guided mode of light propagation in said waveguide. There is no disclosure in Kurosawa concerning the width of the waveguide channel and how it may or may not relate to the periodic spacing between the holes. While Kurosawa shows a set of holes on one side of the waveguide displaced from a set of holes on the other side of the waveguide, it cannot be determined from either the text or the figures, what if any relationship the width of the waveguide has to the periodic spacing of the holes in their respective arrays. It cannot be

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maintained that since **Kurosawa** teaches nothing in this regard that it must necessarily teach any and all limitations whatever they might be. **Kurosawa** is utterly silent on this issue and therefore cannot be cited as teaching each and every limitation of claim 1 as amended. Claims 1 and 2 have been incorporated into claim 1 in alternative form. There is no teaching in **Kurosawa** in regard to the direction of the line displacement.

Claims 5 – 13 are directed to further features about which **Kurosawa** is also utterly silent. It is even less sustainable that **Kurosawa** teaches each and every of each of these claims.

Claim 14 is distinguished from **Kurosawa** by being directed to a method for controlling positions of guided modes within a photonic crystal waveguide within a bandgap. **Kurosawa** never mentions a bandgap or addresses in the most remote sense anything about controlling the positions of the guided modes in the bandgap. It cannot be sustained that **Kurosawa** teaches each and every of each of claim 14. Claims 16 and 17 have been incorporated in alternative form into claim 14.

Claims 18 – 26 like claims 5 – 13 are directed to further features about which **Kurosawa** is also utterly silent. It is even less sustainable that **Kurosawa** teaches each and every of each of these claims.

The Examiner repeated his earlier rejection of claims 1, 10 – 12, 14, 23 – 25 as being anticipated by **Cotteverte**. Again **Cotteverte** was cited as cumulative to **Kurosawa** in that **Cotteverte** showed high refractive index material between two sets of holes to define a waveguide between. **Cotteverte** is

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distinguished from the amended claims for the same grounds as cited in regard to Kurosawa.

Rejection Pursuant to 103(a)

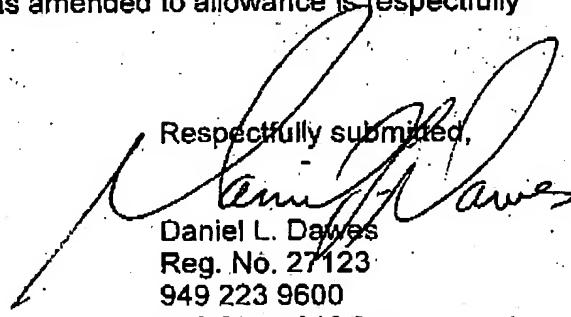
Claims 5 – 7, 18 and 19 were rejected as obvious over Kurosawa.

Kurosawa is again utterly silent in regard to control of the positions of the guided modes in the bandgap due to directional line defect displacements of opposing portions of the hole arrays.

There is no suggestion or motivation in Kurosawa for choosing any direction for any line displacement of the hole array, since Kurosawa fails to teach any control of the guided modes by means of anything, let alone by line displacements of the hole patterns, and in particular by line displacements where controlling the positions of the guided modes within the bandgap comprises forming the first set of holes creates holes displaced in the ΓX direction in the slab to form a type 1 waveguide, or forming the first set of holes creates holes displaced in the ΓJ direction in the slab to create a type 2 waveguide.

Advancement of the claims as amended to allowance is respectfully requested.

Respectfully submitted,


Daniel L. Dawes
Reg. No. 27123
949 223 9600
949 223 9610 fax

Mailing Address:
19900 MacArthur Blvd, Ste 1150
Irvine, California 92612